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ON THE ROLE OF BUSINESS INCUBATORS TO FOSTER ENTREPRENEURSHIP

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ABSTRACT

One of the mostly used instruments to foster entrepreuneurship are business incubators, which aim to support the development of new business ideas in which the incubators help firms to survive and grow during their initial stages. The objective of this paper is to provide the results of the analysis of three case studies about the business incubation process in Portugal, contributing to enhance the knowledge about this subject. The main findings of the paper are the following: the three incubators are focused on stimulating entrepreneurship, new business ideas and innovation, and are concerned in being a facilitator agent of the success of those new projects; however, some differences might be seen among these incubators, namely in terms of criteria used to select the new business ideas or projects, the support services provided to the incubatees, the incubation period, and the type of projects supported.

INTRODUCTION

The idea of following a new business idea from its earliest stage and helping to develop the business venture from its very beginning until it is able to compete in the market is the basis of the business incubation concept (Hackett & Dilts, 2004). Incubation programs have the purpose of assisting entrepreneurs in maturing their businesses, through actions that allow them to acquire knowledge and develop entrepreneurial management skills, as well as entering in networks that are fundamental to become competitive in the markets (Scillitoe & Chakrabarti, 2010). At the end of the incubation program, it is expected to have financially viable firms with suitable management skills and well-positioned in their markets (Mas-Verdú, Ribeiro-Soriano & Roig-Tierno, 2015). Thus, business incubators have become an important tool in the development of the business ecosystem and in the generation of innovative businesses (Fernández, Jiménez & Roura, 2015). Moreover, incubators provide economic and social development generating employment, income and new business opportunities (Bruton, Ketchen, & Ireland, 2013). They reduce the likelihood of business mortality of new enterprises and enable the transformation of scientific new knowledge into profitable innovations, making the university-business relationship more useful (Grimaldi & Grandi, 2005). In this way, incubators are institutions that accelerate innovation and contribute to the modernization of productive structures, services and distribution (Mueller & Thomas, 2001).

Given the relevance of this research topic, the objective of this paper is to present some insights from three business incubators case studies, emphasizing the common and non-common aspects among the analyzed incubators, in order to answer the following research question: “Are there significant differences among different types of business incubators?”. With this approach, the authors intend to provide the business community and the decision makers at governmental level with a perspective of the services provided and an insight on how business incubators can support the development of newly formed ventures. Furthermore, some information on the incubators business model and value proposition is given, thus providing an insight on the purposes and motives that underlie its existence that, in some cases, are not purely financial, although they must present business sustainability and a rationale for its existence.

The paper is organized as follows. Section 2 describes the research methodology adopted in this study. Section 3 describes the main findings of this paper whereas section 4 discusses these findings. Section 5 concludes the paper and presents some suggestion for future research.

RESEARCH METHODOLOGY

The methodological research approach adopted in this study can be characterized as being exploratory and descriptive, since the focus of analysis is to describe how a chosen group of incubators perform their role in terms of business support to news firms. In particular, a qualitative research method – the case study – was used.

As emphasized by Schwartz and Hornych (2008), qualitative research methods are suitable in this context because they allow to obtain important insights into complex social processes that cannot be examined using exclusively quantitative methods, and when the fields of study are not artificial situations in the laboratory, but practices in everyday life. As pointed out by Yin (2013), the case study approach corresponds to an empirical investigation that studies a fact in the middle of a real context in order to develop new knowledge when the studies are still unclear. Therefore, using multiple methods and exploiting a variety of data sources, cases studies provide rich empirical evidence of a particular phenomenon (Yin, 2013). For example, the case study method is suitable when the researcher tries to answer questions initiated with "how" and "why", when the event studied is contemporary to the researcher and when he has no inference power over the object studied. In these cases, the questions asked generally deal with operational issues that require monitoring over time, rather than a timely analysis of events that can be analyzed using quantitative methods (Yin, 2013).

Eisenhardt (1989) underlines the theoretical flexibility as one of the main features of this research method. This means that the research question and hypotheses formulated prior to data gathering and field work must be malleable so that ideas emerging from empirical data can improve them, which implies that the research question may shift during the research. Eisenhardt (1989) suggests the following procedure (or steps) to conduct the empirical analysis (after the initial research questions have been identified): selection of case studies, choice of data collection methods, entering the field, data analysis, comparison of evidence, comparison with both consonant and conflicting literature, and drawing main conclusions.

Given that the main goal of the study was to analyze the role played by business incubators in the incubation process of new business firms, emphasizing the common and non-common aspects among the analyzed incubators, three Portuguese business incubators were selected: a regional incubator (Incubator A), an independent commercial incubator (Incubator B) and a university incubator (Incubator C).

At the beginning, a cover letter was sent via e-mail to the incubators in order to schedule a meeting. After positive feedback from the incubators, data collection was performed through semi-structured face-to-face interviews with open questions within a standard roadmap with the managers of the three business incubators. The purpose of this type of interview is that the views of the subjects interviewed are expressed in an interview situation with open planning rather than in a standardized interview or questionnaire. The idea is that the interviewees feel free to express their ideas and points of view. The intervention of the interviewer was minimal, only in order to guarantee that the interviewees remained within the scope of the question being asked. However, in some cases, interviewees were allowed to digress a little around the question being asked as it was also an opportunity to gain a more holistic perspective on their understanding of the business incubation process. Interviews were carried out, in some cases, in a handwritten form and in others with an audio recording with the prior consent of the interviewees. Those interviews had an average time of 70 minutes.

For the treatment of the collected data, a content analysis technique (Bardin, 2015) was used that allows an objective analysis of the information collected in the interviews, through the codification and categorization, which are the synthesis of the data collected on the field work. The main interest of this instrument lies in the constraint imposed by it to lengthen the latency time between a priori intuitions and initial research hypotheses and definitive interpretations (Bardin, 2015). The qualitative analysis process progresses through the pre-analysis, data exploration and data processing for analysis and interpretation stages.

Besides the data gathered and analyzed with interviews, complementary information was obtained from incubators' websites, analysis of internal documentation and promotional material provided by the incubators, in order to have background information.

FINDINGS

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Regional incubator

Incubator A is a regional nonprofit incubator. Founded at the end of 2008 from a strategic initiative of the municipality of São João da Madeira, its objective was to support the local and regional business community by providing favorable environments for the development and creation of firms, to encourage entrepreneurs to new business projects with a technological basis, play a facilitating role in bringing the business community closer to the scientific community and promoting local entrepreneurship. Having initially started with only one building, Incubator A currently operates in two buildings for the support of new firms, given the evolution of the demand for the services provided and due to the growth of the firms already hosted.

In 2008, Incubator A hosted 16 incubated firms and, from year to year, there was a significant increase in the number of incubated firms, reaching 48 incubated firms in 2015. This has also resulted in an increase in the number of jobs created in all start-ups (from 83 in 2009 to 300 in 2015) and an increase in annual turnover (which reach 19.1 million euros in 2015). Exports of start-ups have evolved since the beginning of their incubation process at Incubator A. In 2015 the total exports of the incubated firms were 58% of their sales volume, representing, therefore, around 11 million euros in sales overseas.

Incubator A provides five types of services to selected firms in the incubation process. Firstly, basic incubation services, such as weekly cleaning services, supply of telecommunication services at competitive prices, distribution of internal mail to firms, maintenance of buildings' infrastructures, and security and reception services. Secondly, industrial property, that is, provision of physical spaces such as training rooms, meeting rooms, offices and auditoriums for holding events. Thirdly, legal and tax counselling, such as support in legal and tax matters providing competent personnel in those matters. Fourthly, investment support and advice such as access to venture capital, access to micro-credit and access to business angels. Finally, business advice and support in the preparation of business and marketing plans, scientific and technical consulting, accounting services, market research, public relations, advertising, and search for qualified human resources for their firms.
The selection of the firms to be incubated is based on a logic of complementarity with the other firms they host, that is, technological or creative. The support focuses mainly on the business areas of automation, robotics, industrial control, electronics and information and communication technologies. Regarding the incubation period, Incubator A does not have a pre-defined period for its incubations. It aims to welcome the maximum number of firms since its main objectives are focused on modernization and development of local businesses based on technology.
In 2014, the municipality took the initiative to explore the local creative potential, managing two different infrastructures. The Oliva Creative Factory Incubator was created focusing on the creative industries hosting projects in the areas of product design, fashion design, footwear, performing arts, and handicrafts, among others. Oliva Creative Factory supported 24 firms in 2014 and 35 firms in 2015. Seventy jobs were created in the total number of firms incubated at Oliva.

Independent commercial incubator

Incubator B is an in-house, for-profit incubator founded in June 2014, in the context of a holding group strategy that is a world leader in the cork business. The ideas and projects that can be supported by this incubator can come not only from Portugal but also from other countries. The unique requirement is that they have innovative ideas and intend to develop businesses related to cork raw material. Incubator B allows entrepreneurs an opportunity to develop quality products with a company that has great influence on distribution and many years of experience in cork products.
In Incubator B, a period of applications is opened where the potential candidates must apply for. After the reception of the applications, a selection of the best projects and a pre-acceleration phase is made, that is, programs with a duration of one month to foment entrepreneurship skills with partners outside the Incubator B are offered with the objective of making business proposals more attractive and robust. After the selection and properly structuring of the projects, all pre-acceleration organization and monitoring is undertaken and information is prepared for the executive committee to make a decision. Depending on the executive committee's decision to move forward or not, projects may automatically progress to start-up status, or may move to an incubation period of projects whose maximum duration is 9 months and then move on to start-up, following a reassessment of the executive committee. In the projects' incubation stage, business models, prototype development, market tests, business plans, certifications, brand creation and a budget of the necessary expenses for the creation of a company are made and explored/analyzed.
If a company is, at the beginning, classified automatically as a start-up or has passed through such a 9-month incubation period and the executive committee decides to move forward, it will have personalized support in terms of management, accounting, administrative support, legal support, access to a diversified network of partners, logistical support, access to international networks, access to raw materials, provision of physical spaces, access to venture capital and support for the internationalization process.
During the incubation period of start-ups there is no defined exit strategy settled at the outset of this stage. There is an evaluation after two or three years in order to decide what follow-up the start-ups should have on the part of Holding Group. Therefore, there is no specific time for incubation of start-ups. Access to venture capital is guaranteed as soon as the company becomes a start-up and through equity investment in the start-up by Incubator B funds. This incubator is generally the main investor, acquiring 24.9% of the company's equity capital, and maintaining an option to buy or sell shares on the start-up. Incubator B supports projects or new businesses that are related to cork, but that not become competitors to the products of the Holding Group already existing in the market. The project must be scalable and oriented to external markets, so that at the end of a period of five years it has an export volume of 200 thousand euros.
Incubator B aims to promote the use of cork in markets where this material is not generally used, and seeks to develop new cork based products, where cork is not applied but can replace other materials. Till the time where this study was undertaken, Incubator B has formed three start-ups. One of them went through the incubation period and the rest went on automatically to the start-up format. In the Incubator B opening year only pre-acceleration periods were performed for selected firms. More than 190 projects or entrepreneurs' ideas from several countries were analyzed. Currently, there are eight projects in the incubation phase. In total, 18 firms went through the Incubator B support scheme, including the pre-acceleration processes, incubation period of projects, incubation of start-ups and stimulus programs.

Finally, after the incubatee already meets all the conditions after two or three years in the incubation of start-up, a new cycle is initiated, that is, a decision is made by the executive committee to proceed with the expansion of the business or sell the Incubator B stake on the firm..

University incubator

Incubator C is a non-profit university incubator founded in 1996. Although created twenty years ago, it is only recently that Incubator C has begun to adopt strategic and growth plans. Over a long period of time, Incubator C performance indicators were low. In 2015, the Incubator C management team developed a business concept that was intended to be recognized internationally as a successful incubator for the incubation of science and/or technology-based projects.

According to the interviewee, the selection of potential incubatees is based on projects of scientific and/or technological base, the projects have to come from the community of the University of Aveiro and have a well-structured business plan. Specifically, the incubator is always available to host applications from students, former students, teachers, former teachers and other University of Aveiro related staff. This selection criterion is due to the fact that the Incubator C is funded by University of Aveiro.

The application procedures for the Incubator C incubation programs have several stages. Initially, a meeting between the company or business idea promoter and the Incubator C technicians and the Technology Transfer Unit of the University of Aveiro (UATEC) is scheduled in order to analyze the value proposition of the company or the business idea to be developed, thus clarifying doubts and identifying the resources needed to develop the business idea or the company, and making the incubation program known to the incubator. In a next phase, the best ideas presented are screened and the ones that obtained a positive evaluation are invited to fill an application form. The last stage refers to the final opinion by the university's rectory on whether the project goes on for the incubation process or not.

The Incubator C incubation program is divided into two stages. The Incubator C Start Incubation Program and the Incubator C Graduate Incubation Program. The first one consists of four phases characterized by Pre-Start, Start, Start up and Start go. In the Incubator C Start Incubation Program, services vary by the stage where the business idea or company is located. These phases consist of distinct individual incubation periods. The Pre Start and Start phases have a duration of 25 weeks each (in the case of the business idea or company be in an embryonic phase), totaling 50 weeks in total, while the Start up and Start go phases have a duration of 50 weeks each, if the company is in a more advanced stage.

For the Incubator C Graduate incubation program, which lasts for a maximum of two years, it is aimed at the growth of firms in international markets, especially those that have successfully completed the Incubator C Start program or for firms that have applied for Incubator C incubation services and have automatically went through to the advanced incubation phases.

Throughout each phase, incubation services are fitted to the needs of firms. For example, support for internationalization is only provided after the company is at a more advanced stage. However, in the interview were mentioned all the types of support that the incubator can provide. In this sense, physical spaces and equipment are available such as individual or co-working offices, basic services (internet, reprography, fax, among others), meeting rooms and training, follow-up on operational business management, legal advice and counselling and accounting services, design and consolidation of the business model and the business plan, coaching, support on the administrative issues regarding the beginning of the firm's activity, support in the structuring of the internationalization process, support in establishing contacts with investors and financial entities, networking events, organization of exhibition events of the firm's products and services, and recruitment and selection.

It should be noted that Incubator C adapts its networks of contacts based on the type of company to be incubated. That is, depending on the type of project to be incubated, contacts will be made with other firms in order to follow a logic of complementarity with firms in the same industry.

The Incubator C started the year 2015 with 7 business ideas and 24 incubation firms, during which it hosted 3 new business ideas and 7 firms. With the support of the Incubator C, 4 new firms were created, ending the year with 2 business ideas in pre-incubation and 21 firms in incubation or acceleration, which were responsible for a turnover of 6.3 million euros and for the creation 128 jobs. During year 2015, a total of 10 business ideas (4 resulted in the creation of 4 new firms, 4 were extinguished, 2 were in pre-incubation at the end of the year) and 35 firms (1 was extinguished, 13 successfully completed the incubation or acceleration period, 21 were in incubation or acceleration at the end of the year) were associated with Incubator C. During the interview, it was possible to verify that in 2010 the turnover of firms in incubation/acceleration stage was about 938 thousand euros and the turnover of the new firms in incubation/acceleration for that same year was about 59 thousand euros. In 2015 the turnover of incubated and accelerating firms corresponded to 4.6 million euros and the turnover of the new firms in incubation and acceleration for that same year was about 1.7 million euros. There has also been a significant increase in the number of graduates in recent years.

DISCUSSION

From the analysis of the findings presented in the previous section, some differences between the three types of incubators included in this study were possible to be identified (Table 1). Firstly, the regional (Incubator A) and the university (Incubator C) incubators, in

comparison to the commercial independent incubator (Incubator B), use a technology- or scientific- based selection criteria for the incubation of new business ideas or firms, and that allows a logic of complementarity with the rest of firms they already host. Secondly, Incubator B supports only new business ideas or firms that has cork as the main input and is open to analyze application from candidates all over the world, unlike Incubator A and Incubator C, which only support projects from their own region. Thirdly, regarding the incubation program of each business incubator, it has been found that Incubator B provides, besides the traditional physical spaces such as offices, meeting rooms, laboratories, and auditoriums, as happens also with Incubator A and Incubator C, warehouses and machines for the production of the innovative products of incubated enterprises. Fourthly, it has been found that Incubator A and Incubator C are non-profit incubators whereas Incubator B is a for profit business incubator (being a private owned incubator). Moreover, this incubator is the only one that applies own funds in incubated firms. Being an independent commercial incubator it is characterized by having a strong commercial focus. Consequently, this type of incubator requires business models with clear internal competencies and is intended primarily for a particular industry. Many times this type of incubator is created by corporations which is connected also with the notion of corporate venture capital. Independent commercial incubators enable entrepreneurs to have a minority partner who possibly has strong contacts with external networks for the marketing of a particular product and can provide specific support in certain areas and focus primarily on a market. Fifthly, it was possible to verify that both Incubator C and Incubator B incubators give special importance to a correct business plan formulation for the new business idea, and this is a major factor upon which those incubators will decide whether the project should continue or not. Through this business plan, the promoter must be able to convince that his business idea is innovative and scalable. Nevertheless, is business incubators responsibility to make good decisions about what projects should be incubated or not. However, all three incubators underlined that, besides the business plan, it is also important to evaluate the entrepreneur's competencies and motivations to continue the project. Finally, incubation period varies from incubator to incubator. At Incubator A there is no incubation period at all. It depends on the evolution of the projects being incubated. In Incubator B there is a 9-month project incubation period and an evaluation (there is no specific standard time for the incubation of the incubatees) at the end of two or three years which will determine what kind of support the incubatees will continue to need from Incubator B. The Incubator C has a maximum incubation period of three years and a maximum acceleration period of two years.

Common features to the three incubators analysed were the following. Firstly, their concern of being (or acting as) a facilitator agent. Based on their coaching, mentoring and networking activities, they help incubatees to find other entities that can help them in a more specialized way depending on incubatees own needs. Secondly, their concern with the stimulus to entrepreneurship and innovation. Usually, business incubators focus is on the development of new products or innovative processes. Finally, the concern with regional development, translated into increased business activity, number of jobs created, and value-added goods and services sold on the markets.

CONCLUSIONS AND FURTHER RESEARCH

The findings of this study provide valuable insights into the role of three different types of business incubators in the incubation process of new business firms, namely in terms of identifying the main differences and similarities among them. As some other studies have underlined (e.g. Bergek & Norrman, 2008; Bøllingtoft, 2012; Rubin, Aas & Stead, 2015), business incubation can be seen as an evolving and interactive process of provision of value-added services and business incubators can be drivers of entrepreneurship and providers of innovative services.

Some of the aspects highlighted by all business incubators managers interviewed in this study for the successful incubation of new business ideas were: entrepreneur commitment, individual maturity and ability to work as a team, technical knowledge about the product being developed and managerial skills. In addition, other characteristics were focused, such as the suitability of the business to the market in which they operate, the clear identification of a problem to be solved, the development of a solution that fully meets the demands of the market and the business model settled. An aspect also highlighted in the respondents' answers concerns the challenge that represents for incubatees their ability to successfully exit the incubator. Achieving successful graduation means that incubatees have been able to design a new product or service, organize the production process, manage conflicts, attract skilled human resources and define a strategy suitable to operate in the market. Generally, this implies that the technical and managerial support and training received from the business incubator has been translated into the development and harnessing of the new business firm's resources and abilities, since they are inserted in an environment focused on the promotion of innovation and the development of differentiated products and services.

In spite of the findings of these three case studies, a holistic approach should be adopted to understand the complete role of business incubators in the process of fostering entrepreneurship and to understand the business incubation process model. In this context, several perspectives of future research can be highlighted. Firstly, the inclusion in the analysis of the point of view of incubated firms. Since only the incubators' point of view was taken into account in the current study, it would also be important to understand the incubatees' expectations about the incubation process. Do these

expectations and the results they hope to obtain (or do they achieve) fit into what the incubators themselves intend to provide to their incubatees? A second possible line of research is related to the impact of incubators, namely at the local economy level. Is this impact significant? In fact, some studies (e.g. Campbell & Allen, 1987; Sherman, 1999) have shown that this impact tends to be relatively small. At the same time, the question arises as to how to measure this impact. In general, this has been measured by the number of firms created and/or graduated, number of jobs created, turnover, exports, value added, and number of patents, among others. However, is it possible to measure and compare the growth and development of new business ventures that have and have not been involved in a business incubation process? A third line of research relates to the description and understanding of the business incubation process itself. In fact, to have a comprehensive understanding of business incubation this must be seen as a process and not merely as an entity that provides business support services. In this sense, it would be useful to develop and/or conceptualize a business incubation process model (Phan, Siegel & Wright, 2005). This is particularly relevant in the context of the triple helix model or even the quadruple helix model (Etzkowitz & Leydesdorff, 2000, Carayannis & Campbell, 2010, Kolehmainen et al., 2016). What is the role of business incubators in this theoretical framework?

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